

THE INVENTION CLAIMED IS

1. A payment card, comprising:

5           a user-sensor for accepting a user input;  
          a processor connected to the user-sensor and providing  
for user authentication;  
          a contact interface connected to the processor and  
providing for communication with a contact-type smartcard reader;  
10           a wireless interface connected to the processor and  
providing for communication with a contactless-type smartcard  
reader;  
          a stripe of magnetic material having a longitudinal  
length, and a front side and a back side, and able to store  
15   electronic data as a magnetic recording comprising a plurality of  
bits;  
          a magnetic write head permanently positioned on said  
back side of the stripe at a particular data bit of one of said  
plurality of bits, and providing for electronic-magnetic  
20   alteration of a data bit magnetically readable on said front  
side;  
          a magnetic recording serially accessible to a  
longitudinally moving read head on said front side of the stripe  
that includes said data bit affected by the magnetic write head;  
25   and  
          a plastic card in which all the other elements are  
disposed.

2. The payment card of claim 1, wherein:

30           the user-sensor includes a keypad for user entry of a  
password.

3. The payment card of claim 1, wherein:  
the user-sensor includes a biometric sensor for  
collecting a physical characteristic of the user.

5 4. The payment card of claim 1, wherein:  
the user-sensor includes a biometric sensor for  
collecting at least one of a signature or a fingerprint of the  
user and such is used by the processor to authenticate the user.

10 5. The payment card of claim 1, wherein:  
the processor includes a secure dual-interface  
smartcard integrated circuit.

15 6. The payment card of claim 1, wherein:  
the processor includes a programmable interface  
controller (PIC) connected to a contact interface of a secure  
dual-interface smartcard integrated circuit.

20 7. The payment card of claim 6, wherein:  
the PIC does not store more than one digit of a user  
password being entered before sending it on to said contact  
interface of said secure dual-interface smartcard integrated  
circuit.

25 8. The payment card of claim 6, wherein:  
the PIC does not store a whole user password entered  
one digit at a time.

30 9. The payment card of claim 1, further comprising:  
a financial account number of a user encoded within the  
magnetic recording; and

a controller connected to the magnetic write head and providing for a subsequent obfuscation of the financial account number by re-recording of said data bit.

5        10. The payment card of claim 1, further comprising:  
         a usage-counter record encoded within the magnetic  
recording; and  
         a controller connected to the magnetic write head and  
providing for a subsequent incrementing of the usage-counter  
10 record by re-recording said data bit.

         11. The payment card of claim 10, further comprising:  
         detectors connected to signal the controller when a  
reading of data in the magnetic recording has occurred.

15        12. The payment card of claim 1, further comprising:  
         a piezoelectric generator connected to power the  
processor.

20        13. The payment card of claim 1, further comprising:  
         a piezoelectric generator connected to charge a battery  
that powers the processor.

         14. A method for operating a payment card, comprising:  
25        providing a programmable magnetic array on a payment  
card; and  
         presenting valid data to said magnetic array for a  
limited time.

15. A method for operating a payment card, comprising:  
providing a smartcard contact interface, a wireless  
smartcard contactless interface, and a programmable magnetic  
array on a single payment card; and  
5 presenting valid data to said magnetic array for a  
limited time.

16. A method for operating a payment card, comprising:  
providing a smartcard contact interface, a wireless  
10 smartcard contactless interface, and a programmable magnetic  
array on a single payment card;  
requiring a user to enter a password on said single  
payment card; and  
presenting valid data to said magnetic array for a  
15 limited time if the user is authenticated.

17. A method for operating a payment card, comprising:  
providing a smartcard contact interface, a wireless  
smartcard contactless interface, and a programmable magnetic  
20 array on a single payment card;  
requiring a user to enter a biometric on said single  
payment card; and  
presenting valid user account data to a corresponding  
card reader for a limited time if the user is authenticated.

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18. A method for a transaction process, comprising:  
embedding an algorithm that encodes unique user data in  
a cryptoprocessor;  
requesting a new unique transaction encoding to be  
30 issued by using said cryptoprocessor to process said algorithm  
and to generate a data suited to a card-acceptance system pre-  
processing requirements; and

using a conventional transaction infrastructure and server to derive from said number said unique user data.

19. The method of Claim 18, further comprising:

5       communicating said new unique transaction encoding to said conventional transaction infrastructure and server by a smart card contact or proximity connection.

20. The method of Claim 18, further comprising:

10       communicating said new unique transaction encoding to said conventional transaction infrastructure and server by a reprogrammable magnetic stripe on a card read by a reader.